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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,084	07/09/2007	Akira Akabane	107348-00599	4159

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EXAMINER	
JONAITIS, JUSTIN M	

ART UNIT	PAPER NUMBER
4159	

NOTIFICATION DATE	DELIVERY MODE
11/07/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DCIPDocket@arentfox.com
IPMatters@arentfox.com
Patent_Mail@arentfox.com

Office Action Summary	Application No.	Applicant(s)	
	10/590,084	AKABANE, AKIRA	
	Examiner	Art Unit	
	JUSTIN JONAITIS	4159	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/21/2006 & 05/03/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The disclosure is objected to because of the following informalities: Amendment filed on 21 August 2006, page 6 discloses to amend the second full paragraph on page 17 bridging 18 with the provided text. Examination of the Specification seems to imply the text should amend the third full paragraph [0038] on page 17 bridging 18 as opposed to the second full paragraph [0037].

Appropriate correction is required.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent #6,386,467 to Takeda in view of U.S. Patent #4,509,693 to Nakai.

5. In re claim 1, Takeda discloses

a. an electromagnetic fuel injection valve, in which a **valve member (Valve Assembly (4))** is contained in a valve housing comprising a **magnetic cylinder (2d)**

coaxially coupled at a front end thereof to a **valve seat member (6b)** having a **valve seat (6f),** the valve member being spring-biased in a direction in which the valve member is seated on said valve seat;

b. a **non-magnetic cylinder (2e)** serving as a member different from the magnetic cylinder is coaxially coupled at a front end thereof to a rear end of the **magnetic cylinder (2d)** to surround a portion of a **movable core (Armature (4b))** which is coaxially connected to the **valve member (Valve Assembly (4))** with a rear end face thereof serving as a movable attraction face; and a front portion of a **stationary core (Core (8))** having a front end face serving as a stationary attraction face is fitted into and fixed in a rear portion of said non-magnetic cylinder, so that the stationary attraction face is opposed to the movable attraction face, characterized in that the front portion of the stationary core is fitted and fixed in the non-magnetic cylinder so as to be in close contact with an inner surface of an intermediate portion of the non-magnetic cylinder in a region corresponding to the stationary attraction face, and in the inner peripheral surface of the non-magnetic cylinder and an **annular recess (Thin Portion (4j))** [Takeda Figure 1].

6. Takeda does not disclose the annular recess having a flat portion flush connected to the stationary attraction face is provided to form an annular chamber between the annular recess and an outer periphery of the rear portion of the movable core, and in the inner peripheral surface of the non-magnetic cylinder, a center bore having an inside diameter larger than an outside diameter of the stationary attraction face is further provided at a location in front of the annular recess the, a guide bore is provided in an inner periphery of the magnetic cylinder the and flush connected to the center bore of the non-magnetic cylinder, and the annular chamber

is formed by continuously connecting the flat portion of the annular recess and the center bore and guide bore by means of an inclined surface.

7. Nakai shows that an annular recess having a flat portion connected to the stationary attraction face forming an annular chamber between the annular recess and the outer periphery of the rear portion of the moveable core, and in the inner peripheral surface of the non-magnetic cylinder, a center bore having an inside diameter larger than an outside diameter of the stationary attraction face is further provided at a location in front of the annular recess the, a guide bore is provided in an inner periphery of the magnetic cylinder the and flush connected to the center bore of the non-magnetic cylinder, and the annular chamber is formed by continuously connecting the flat portion of the annular recess and the center bore and guide bore by means of an inclined surface [Nakai Figure 2] is an equivalent structure **known in** the art at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute the annular chamber disclosed by Takeda with the annular chamber disclosed by Nakai.

8. In re claim 2, Takeda discloses the invention as described above including a **guide portion** integrally provided on the movable core having at a rear end face thereof the movable attraction face having an outside diameter substantially equal to that of said stationary attraction face to overhang sideways from the outer periphery of said movable attraction face, so that said guide portion is slidably fitted in said guide bore.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent #6,386,467 to Takeda in view of U.S. Patent #4,509,693 to Nakai as applied to claim 2 above, and further in view of U.S. Patent #6,367,720 to Okamoto et al

10. Takeda in view of Nakai disclose the invention as described above but fail to point out specifically how the components being manufactured using a material blank and grinding it in order to form the structures of the parts. Okamoto et al. shows that grinding a blank to create structure shape is a well-known method of manufacturing components for an electromagnetic fuel injection valve [column 4, line 52-54]. Official Notice is taken that manufacturing using a blank and grinder is a conventional or well-known feature or method for manufacturing a product. Therefore it would have been obvious to a person having ordinary skill in the art to create the magnetic and non-magnetic cylinders from a blank using a grinder as well as grinding away the material in order to make the components in the structure of Takeda or Nakai.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent #5,178,362 to Vogt et al. discloses an electromagnetically actuatable valve which discloses similar structure. U.S. Patent #5,199,648 to Fujikawa discloses a fuel injection valve with another variation of the annular recess. U.S. Patent #6,758,420 to Arioka et al. discloses a fuel injection valve with similar structure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUSTIN JONAITIS whose telephone number is (571)270-5150. The examiner can normally be reached on Monday - Friday 7:30am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Nguyen can be reached on (571)272-4491. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JJ

/George Nguyen/
Supervisory Patent Examiner, Art Unit 4159